WHAT IS CLAIMED IS:

1. A method of fabricating a holey optical fiber, comprising the steps of:

(a) forming a sol by mixing a starting material, deionized water, and an additive;

(b) pouring the sol into a circular frame to form a gel;

(c) inserting a preform rod at the center of the gel;

(d) vertically arranging a plurality of glass tubes around the preform rod located in the center of the gel;

(e) removing the gel from the circular frame to dry the gel;

(f) sintering the dried gel under a heat application to form a preform; and,

(g) drawing the holey optical fiber from the sintered preform while supplying gas into one end of the sintered preform and heating at the other end.

2. The method of claim 1, further comprising the step of thermally treating the dried gel at a predetermined temperature to remove impurities from the gel after executing the step (e).

3. The method of claim 1, wherein the preform rod is formed by an erbium-doped silica.

4. The method of claim 1, wherein the preform rod is formed by a germanium-doped silica.

5. An apparatus for fabricating a holey optical fiber, comprising:

a preform cover sealing one end of a holey optical fiber preform;

a gas supplier for supplying gas into the preform cover;

a pressure regulator for controlling the amount of gas supplied from the gas supplier to be constant; and,

a heating means installed at the other end of the holey optical fiber preform for heating the other end of the preform to draw an optical fiber.

6. The apparatus of claim 5, further comprising a fixing rod attached to the top of the preform cover to hold the holey optical fiber preform in a stationary position.

7. The apparatus of claim 5, wherein the gas is nitrogen.

8. An apparatus for fabricating a holey optical fiber, comprising:

a tubular preform;

a sealing means operative to cover the top portion of the tubular preform for receiving a flow of gas at a predetermined pressure;

a storage means to store the gas;

a regulating means for controlling the amount of gas supplied from the storage means to the sealing means to be constant; and,

a heating means coupled at the other end of the tubular preform for heating the tubular preform while drawing an optical fiber from the tubular preform.

9. The apparatus of claim 8, wherein the tubular preform is formed by the following steps:

(a) forming a sol by mixing a starting material, deionized water, and an additive;

(b) pouring the sol into a circular frame to form a gel;

(c) inserting a preform rod at the center of the gel;

(d) vertically arranging a plurality of glass tubes around the preform rod located in the center of the gel;

(e) removing the gel from the circular frame to dry the gel; and,

(f) sintering the dried gel under a heat application to obtain the tubular preform.

10. The apparatus of claim 8, wherein the gas is nitrogen.